

PASCO-KENNEWICK TRANSMISSION LINE,
COLUMBIA RIVER CROSSING TOWERS
Columbia Drive and Gum Street
Kennewick
Benton County
Washington

HAER No. WA-118

HAER
WASH
3-KENNY
1-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Western Region
Department of the Interior
San Francisco, California 94107

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Location: The northern tower is on the north bank of the Columbia River, in Pasco, Franklin County, Washington. The central tower is at the eastern tip of Clover Island on the Columbia River, Kennewick, Benton County, Washington. The southern tower is on the south bank of the Columbia River, near the northwest corner of Columbia Drive and Gum Street, Kennewick, Benton County, Washington.

U.S.G.S. 7.5 minute series topographical map, Pasco, Washington quadrangle, Universal Transverse Mercator coordinates:

North tower: 11.337580.5120680

Center tower: 11.337540.5120160

South tower: 11.337520.5119800

Date of Construction: 1910

Manufacturer: United States Wind Engine and Pump Company

Present Owner: Benton County Public Utility District No. 1

Present Use: Transmission of electric power.

Significance: The three electrical transmission line towers between Pasco Kennewick are the earliest known effort to span the Columbia River, by aerial means, with electrical lines strung between steel frame towers. The Yakima Valley Power Company (YVP) initiated construction, but it was purchased by Pacific Power and Light Company (PP&L). The towers were determined eligible for inclusion in the National Register of Historic Places in 1993.

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INTRODUCTION

Bonneville Power Administration (BPA), in cooperation with the Franklin County Public Utility District No. 1, and Benton County Public Utility District No. 1, are planning to upgrade an eight-mile section of electrical transmission line in Pasco and Kennewick, Washington. As part of the BPA Franklin-Angus Project, the three Columbia River crossing towers, which were constructed for the original 69 Kilovolt (KV) transmission line, will be altered in part to carry a new 115 KV line.

The towers, all within Section 31, T 9N, R 30E, WM (figure 1), will be adapted by replacing the peaks and cross arms to the new configuration (figure 2). A Determination of Eligibility (DOE) for the National Register of Historic Places (NRHP) was made in September 1993 by the Washington State Historic Preservation Office (SHPO),¹ and in compliance with regulatory directive this Historic American Engineering Record (HAER) report is submitted in mitigation of adverse effect upon these historic structures.

DESCRIPTION

The three towers of the Pasco-Kennewick transmission line Columbia River crossing were originally 146 feet in height, with four vertical main beam legs separated 25 feet per side at the base, and four feet per side at the top. The original four-sided pyramidal-shaped concrete footings for each of the tower legs measure seven feet, six inches in height, eight feet, six inches per side at the base, and two feet, six inches per side at the top. The galvanized steel "L" angle components are arranged in 13 modular segments, which consist of a horizontal crossmember with two diagonal stress rods per side in each segment, connected to the vertical main beams by nut, bolt and flange fasteners. The towers are now 152 feet in height with the addition in 1919 of the sawhorse-shaped ground cable holder extensions, installed to deflect lightening strikes from the power cables.

All three towers have three electrical transmission line cross arms holding two lines each at opposite ends. The cross arms are eight feet apart vertically. The lines are eleven feet apart horizontally. Cross arms on the end towers are rectangular-shaped platforms of three segments, each with double diagonal stress rods. The length of the cross arms on the end towers are all approximately twelve feet, while the width of each cross arm platform decreases the higher its position on the towers: upward, five feet, four and a half feet, four feet in width, respectively. The transmission line cross arms on the center tower are all three octagonal-like in shape, with approximately the same length, center width and distance of separation as the end towers.

¹ Greg Griffith, personal communication with Mr. Phillip D. Havens, BPA, regarding the NHRP Determination of Eligibility for the Pasco-Kennewick Transmission Line Columbia River Crossing Towers. 1 1

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All three towers have two rectangular-shaped telephone line cross arm platforms, the top level separated by about nine feet from the bottom transmission line cross arm platform. Similarly, the telephone cross arm platforms are in three segments, all with two diagonal stress rods, and are approximately 15 feet in length and six feet wide. A second, lower set of telephone line cross arm platforms are placed at differing heights on each tower. The bottom telephone line cross arm platforms are approximately at the 120-foot level on the north tower, at the 112-foot level on the center tower, and at the 80-foot level on the south tower. The south tower's bottom telephone line cross arm platform is partially made of wood. Each tower is equipped with a maintenance ladder, and each has five airway warning lights.

HISTORICAL BACKGROUND

Thomas Edison's invention of the electric light in 1879 rapidly transformed the lives of Americans and changed standards of living by the introduction of technological convenience, both industrially and domestically. By 1885 Pacific Northwest cities were clamoring for the opportunity to enlighten their citizens and small electric power companies sprang up at every feasible location. As speculative venturing outpaced available capital, larger, well-financed concerns began to consolidate resources in holding companies, buying out locals in an ever-widening process of recapitalization, reorganization and reconfiguration.²

The Inland Empire was, likewise, caught up in this era of frenzied growth, technological advancement and commercial exploitation. As the Northern Pacific Railway (NP) advanced through south-central Washington via the Yakima River valley along its Cascade Division right-of-way, towns were established along the corridor, mostly platted by the NP or its subsidiaries. North Yakima (Yakima), Pasco and Kennewick were three such towns.

The town of Ainsworth was established in 1879 on the west side of the Snake River at its confluence with the Columbia River. It was a construction town built to house the laborers engaged in building the Northern Pacific's bridge across the Snake and the connecting line to Wallula at the Oregon Steam Navigation Company (OSN) terminus. The NP and the OSN were owned jointly, and their connection would complete the NP's 1883 route to Tacoma. In 1884 the bridge was completed and the town of Ainsworth was dismantled, some of its buildings moved to the new NP company town of Pasco, a short distance up river, as a permanent station.³

² John Dierdorff, *How Edison's Lamp Helped Light the West: The Story of Pacific Power and Light Company and Its Pioneer Forebears* (Portland: Pacific Power and Light Company, 1971):1-11.

³ Walter A. Oberst, *Railroads, Reclamation and the River: A History of Pasco* (Pasco, Washington: Franklin County Historical Society, 1978):15-18.

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Kennewick was surveyed in 1884, but had served the previous year as a construction camp. The town became the NP headquarters for the Cascade Division building the line up the Yakima Valley and over Stampede Pass completed by 1888. In the same year the railroad bridge across the Columbia between Pasco and Kennewick was also completed.⁴

Three more railroads soon chose to run lines through Pasco and Kennewick. The Spokane, Portland and Seattle Railroad (SP&S), known as the "north bank road," owned jointly by the NP and the Great Northern Railroad (GN), used the NP Pasco-Kennewick crossing.⁵ The Oregon-Washington Railroad and Navigation Company (OWRN) and the North Coast Railroad Company (NC) also built lines through the cities, both using a bridge across the Columbia constructed by the NC just below the mouth of the Snake.⁶

Pasco and Kennewick became the focal point of competition and cooperation between empire builders far beyond any interest justified by the local population. In 1910 the population of Pasco and Kennewick was 2,083 and 1,219, respectively.⁷ Yet four railroads, several land, irrigation and reclamation companies, and the central link for a growing utility network had all descended upon this rather isolated bend in the river.

Henry Villard, the entrepreneur who owned controlling interest in the NP and the OSN (renamed the Oregon Railroad and Navigation Company (ORN)) had succeeded in completing the Columbia route of the NP in 1883, using the ORN link between Wallula and Kalama. After deciding upon the Pasco-Kennewick Columbia crossing as the starting point of the Cascade Division route, Villard lost control of both the NP and ORN. By 1900, after considerable chaos and hard economic times in the 1890s, several new powerful players came on the scene.

Edward H. Harriman, controlling the Union Pacific (UP) and Southern Pacific (SP), bought the ORN (renamed the Oregon-Washington Railroad and Navigation Company (OWRN)) and linked it between Provo, Utah, and the Columbia River with the UP, depriving the NP of its Columbia Division link. James J. Hill, who had created the Great Northern Railroad (GN) and pushed it over Stevens Pass in 1893 to connect Duluth, Minnesota, with Seattle, bought controlling interest in the NP. Backed by J. P. Morgan, Hill (GN & NP) decided to compete directly with Harriman (UP, SP & OWRN) and created the Spokane, Portland and Seattle Railroad (SP&S), running another line from Spokane down the right (north) bank of the lower Columbia. In turn

⁴ Martha Berry Parker, *Kin-i-wak, Kenewick, Tehe, Kennewick* (Fairfield, Washington: Ye Galleon Press, 1986):11-12.

⁵ William Denison Lyman, *The Columbia River: Its History, Its Myths, Its Scenery, Its Commerce* (Portland: Binfords and Mort, Publishers, 1963):228-281.

⁶ Parker, 1986:50.

⁷ Oberst, 1978:31.

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Harriman ran an OWRN line north to Spokane and silently backed Robert Strahorn, who was building the North Coast Railroad (NC) up the Yakima Valley in direct competition with the NP.⁸

In the first decade of the twentieth century, corporate giants clashed to secure controlling economic advantage over the Pacific Northwest and one of their battlegrounds was Pasco-Kennewick. In the wake of the railroads were the other development agents of a rapidly advancing civilization. Large and capital-intensive enterprises were inextricably entwined with the railroads. Land companies, irrigation projects and utilities were connected directly or indirectly to railroads and their major personalities, as they served mining, timber, agriculture and nascent industries in the region.

Robert E. Strahorn (figure 3), an enigmatic man known as "the Sphinx," was president of the Pasco Reclamation Company, the North Coast Railroad, and several other enterprises. In 1903, he had organized the Northwest Light and Water Company (NLW) with the expansive purpose of purchasing the Yakima Water, Light and Power Company (YWLP). By 1908, he again consolidated properties with the organization of the Yakima Valley Power Company (YVP), and purchased the Pasco Light and Water Company (PLW) and the Columbia Basin Water, Light and Power Company (CBWLP) in Kennewick. The Pasco system had begun operations on March 1, 1907, under F. E. Elmendorf, George H. Doerr, W. S. Gilbert and W. O. Parker. Kennewick utilities were first provided February 1, 1907, when the CBWLP was organized by Clifton A. Cochrane, Calvin E. Wood and Albert L. Smith.

Just prior to Strahorn's buy out, the Pasco system burned. The YVP quickly restored utility service to Pasco and the irrigation pumping system of the Pasco Reclamation Company by running a submerged cable across the Columbia River in the fall of 1908. The YVP began construction on an upgrade of their facilities with the addition of a 500 Kilowatt steam plant at Kennewick, a new transmission line between Yakima and Kennewick connecting several towns in between, and the building of the 69 KV aerial transmission line across the Columbia River replacing the temporary submerged line. With the connection and improvement of the YVP properties, the company was reorganized as the Yakima-Pasco Power Company (YPP) in April 1910.⁹

The Yakima Valley Power Company was headquartered at the Empire State Building in Spokane, the city where Strahorn lived and Chief Engineer F. L. Pitman planned construction

⁸ Dorothy O. Johansen and Charles M. Gates, *Empire of the Columbia: A History of the Pacific Northwest* (New York: Harper and Row, Publishers, 1957):314.

⁹ N. W. Durham, *History of the City of Spokane and Spokane Country Washington From Its Earliest Settlement to the Present Time*, Vol. III (Spokane: The S. J. Clarke Publishing Company, 1912):4-7; Dierdorff, 1971:23-27; *Pasco Express*, 17 February 1910.

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of the line from Yakima to Kennewick and the river crossing from Kennewick to Pasco. General Superintendent George C. Arrowsmith, working out of North Yakima, had overall supervision of the network expansion, where in the summer of 1909 he was corresponding with wire companies to get specifications prior to ordering the towers from the United States Wind Engine and Pump Company of Batavia, Illinois. Superintendent R. J. Andrus of Kennewick and Assistant Superintendent B. P. Bailey of Pasco were site supervisors.¹⁰

On the front page of the 12 January 1910 edition, the *Twin City Reporter* broadcasted:

Plans which the Yakima Valley Power company has had under consideration for some time have so far materialized that it is now definitely known that Kennewick and Pasco are to be harnessed up in a great electrical system, by means of a cable spanning the Columbia river. To accomplish this transmission feat which is one of the most difficult ever undertaken in the west, the power company will soon begin the erection of three mammoth [sic] steel towers 150 feet in height.¹¹

Construction was begun after a permit was issued by the Army Corps of Engineers in February 1910.¹²

Before construction of the towers had even begun, Strahorn was in the process of selling his utility properties. In April 1910 the Northwestern Corporation (NWC) announced it had been making payments on the YVP since January, while at the same time negotiating its (NWC) sale to the H. M. Byllesby Company.¹³ By June 1910 the YPP was sufficiently developed enough to attract the attention of a powerful eastern utility conglomerate, the American Light and Power Company (AL&P) of New York, which gobbled up these Strahorn properties, along with several more in the region.¹⁴ The AL&P reorganized all the new Pacific Northwest regional properties into one large entity, Pacific Power and Light (PP&L), now under PacifiCorp, its headquarters at Portland.¹⁵

¹⁰ George C. Arrowsmith, Correspondence with Pierson, Roeding and Company, Seattle, 1909. Pacific Power and Light (PP&L) archives, Portland; United States Wind Engine and Pump Company (USWE&P), blueprints of the three towers for the Columbia River transmission line crossing, L-1204. Engineering Department, Benton County Public Utility District No. 1, Kennewick, Washington.

¹¹ *Twin City Reporter*, 12 January 1910:1.

¹² Robert Shaw Oliver, Assistant Secretary of War. Construction permit, 15 February 1910, No. 69676 Engs. Columbia River Transmission Line Crossing. Benton County Public Utility District No.1.

¹³ *Twin City Reporter*, 6 April 1910:1.

¹⁴ *Pasco Express*, 16 June 1910:1.

¹⁵ *Twin City Reporter*, 22 June 1910:1; *Pasco Express*, 23 June 1910:1.

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PP&L soon began a massive construction project to link its properties together, which included the Astoria and Portland vicinities, as well as up the Columbia as far as Priest Rapids, up the Yakima River valley, and in southeastern Washington and northeastern Oregon. Pasco was chosen as the hub, with its crucial river crossing, and a new power distribution station was constructed there.¹⁶

The Executive Committee for PP&L made a historic decision in January 1917 when it contracted with another large utility, the Washington Water Power Company (WWP) of Spokane, for reciprocal sale of excess electric power. Construction of the Pasco-Lind line in November 1917, connecting the two companies, established a precedent for a new form of energy networking.

The interconnection agreement provided for "reciprocal sale and purchase of waste electrical power and energy from time to time between the two companies," and the basic principles of the contract arrangement subsequently have been followed over and over again throughout the nation.¹⁷

Over the years several minor alterations and adaptations have been made to the towers. In 1919 ground wire extensions were placed on the apex of the towers and new insulator connections added. By 1921 the Pasco telephone cross arm was altered. The telephone cross arms of the Kennewick and center towers were adapted in 1927. World War II saw the increase of air traffic, requiring installation of airplane safety lights in 1943. And, in 1952, reinforcement of the concrete foundations was completed to accommodate the rise in water level from Lake Wallula after the construction of McNary Dam.¹⁸

Benton County Public Utility District No.1 purchased most of PP&L's Pasco-McNary 69 KV line on January 29, 1980. This purchase included the tower crossing on the Columbia River from the anchor structure on the north bank of the river in Pasco, through Kennewick, a distance of twenty four miles in Benton County, for the sum of \$15,000.¹⁹

¹⁶ *Pasco Express*, 8 December 1910:1 and 26 January 1911:1.

¹⁷ Dierdorff, 1971:60.

¹⁸ Pacific Power and Light, blueprints: PD-6401, PD-6408, PD-6939, PD-8512, PD-8513, PE-10394, PD-12464.

¹⁹ Pacific Power and Light, archives. Deed, Bill of Sale and Assignment of Easement between PP&L and Benton PUD No.1, 29 January 1980, for the Pasco-McNary 69 KV line.

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CONCLUSION

The Columbia River crossing towers at Pasco and Kennewick are historically significant not only because of being the first aerial crossing structures on the Columbia, or the tallest and the longest in the Pacific Northwest at the time of their construction, but because they were a crucial element in the development of the power networking concept. This concept of buying and selling excess electric power amongst users geographically distant has become a primary responsibility for public power agencies, like the Bonneville Power Administration and others, to the benefit of private utility companies, public utility districts, and power consumers in general.

ACKNOWLEDGEMENT

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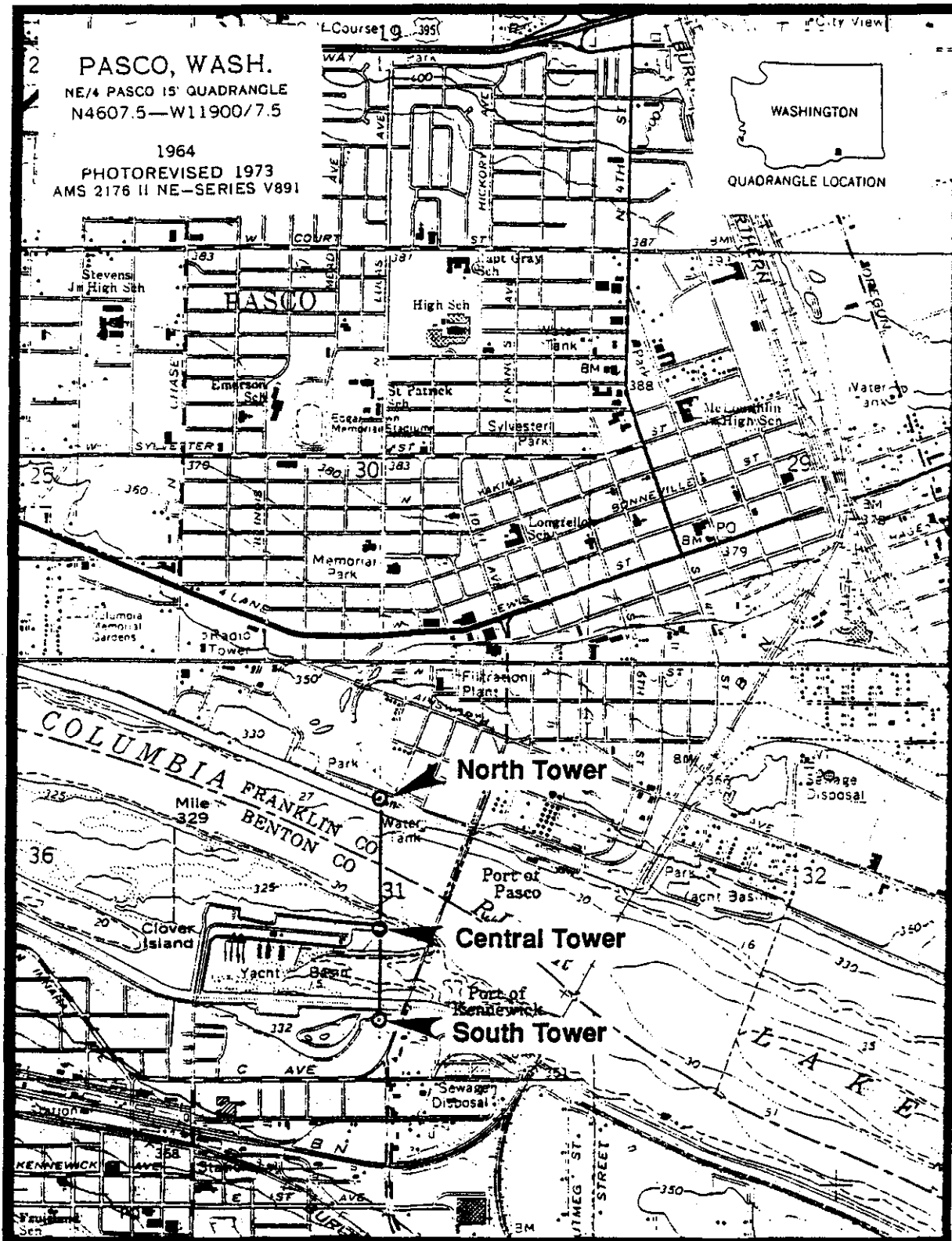
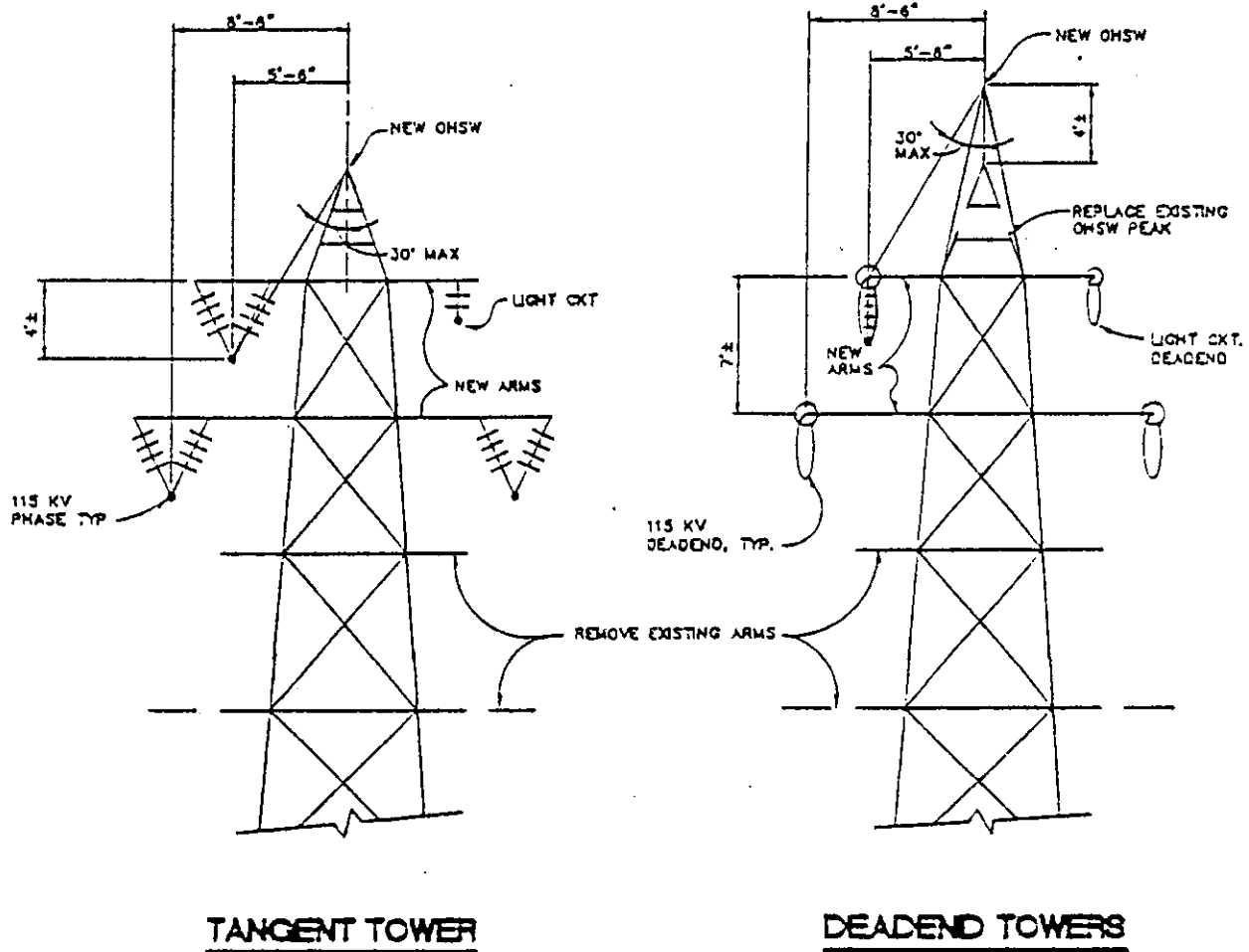


Figure 1, Pasco-Kennewick Transmission Line, Columbia River Crossing Towers.

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CONCEPTUAL TOWER CONVERSION

TO 115KV-

R.W. BECK
AND ASSOCIATES

Figure 2, Bonneville Power Administration Franklin/Angus Project.



Robert Strahorn

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